



Memorandum

To: Jim Anderson, Oregon Department of Environmental Quality

From: Lower Willamette Group (LWG)

CC: Chip Humphrey, U.S. Environmental Protection Agency, Region 10

Kristine Koch, U.S. Environmental Protection Agency, Region 10

Date: June 14, 2012

Re: Potential Hot Spot Buried Contamination Transition Zone Water (TZW) Screening Analysis, Portland Harbor Superfund Site (Site).

The objective of this memorandum is to provide a response to a question from DEQ during our last meeting (May 10, 2012) about whether buried sediment contamination is likely to cause changes in surface sediment TZW, possibly indicating buried subsurface sediment that might constitute a mobile hot spot under Oregon rules and guidance. This memo contains preliminary results of a screening analysis of buried sediment contamination to have the potential to cause migration of contaminants to locations where exposures might occur (i.e., surface sediments and surface water) at the Site. The results are explained and discussed more in the remainder of this memo. Given this is a screening analysis, results can be used to rule out the potential for buried contamination in this context, but further analysis would be needed to confirm any indications of potential buried contamination.

Explanation and Discussion of Screening Analysis

The screening analysis involved using the results of the "No Action" model runs to determine whether we see any increases in surface sediment TZW concentrations over time. If such increases were projected, there might be a potential for those increases to be driven by migration of subsurface contamination to the surface via groundwater/TZW. If no such surface TZW increases were projected, then subsurface contamination cannot be having a strong effect on surface TZW over time.

The attached maps show the results of this screening analysis for Total PCBs, BaP, and DDE (the bounding COCs that have RALs for all alternatives). The results are expressed as the net difference between the concentrations at the beginning and end of the model simulation. To focus the question on where buried contamination could have a real potential to identify new potential mobile hot spots, neutral colors (grays) were applied to model cells that are not of interest under this analysis because one of the following criteria are already met:

- All model cells that have surface sediment concentrations that are greater than the subsurface sediment are shown as gray
 - This is because there is no buried contamination present to provide a source of elevated concentrations to surface TZW.
- All model cells that have a subsurface sediment concentration that is less than the Alternative B RALs are shown as another shade of gray
 - Here we think the focus should be on “elevated” concentrations in subsurface sediment. We used Alternative B RALs as a conservative estimate of what might be considered elevated.
- All model cells that are outside the Comprehensive Benthic Risk Areas (CBRA) defined (using EPA agreed upon procedures) in the draft FS are shown as another shade of gray
 - This is because these areas are currently not posing risk to the benthic community via either TZW (one line of evidence in the CBRA approach) or bulk sediment. Thus, migration of subsurface contamination that poses risks to the benthic community cannot be occurring outside CBRAs.

Also, all model cells remediated by Alternative B are shown as red. Alternative B is the smallest alternative and would already contain any potential areas of hot spots per LWG suggested methods.

Results

The results of the screening analysis are that there are no model cells that meet the above criteria for possible subsurface contamination that would cause impacts to surface sediment TZW.

Conclusion

The analysis clearly shows that it is unlikely that potential mobile subsurface sediment contamination, consistent with DEQ's description of their concern, exists over expansive areas of the Site.